Nature Printing

MUSEUM OF VICTORIA
21 OCT 1987
LIBRARY

History & Techniques

by F.G. Hochberg

Museum of Victoria

761
H 658n

Acknowledgements

PHOTOGRAPHS: HARA (HARA Photographics)
Frank Coffa and Rodney Start (Museum of Victoria)

COVER: "Bigscale Pomfret" (19 x 26")
Fish Print by F.G. Hochberg
Santa Barbara, California 1977

BOOK DESIGN: Sandra Lucey, Exhibitions Department (Museum of Victoria)

Copyright © 1985
Museum of Victoria
ISBN 07241 5584 8

8155/87(6

Foreword

This publication on the ancient art of nature printing is sponsored by the Science and Humanities Committee of the Museum of Victoria. The author, Dr. Hochberg, is the Museum's Science and Humanities Scholar for 1985.

MUSEUM OF VICTORIA
21 OCT 1987
LIBRARY

The Science and Humanities Scholarship is awarded annually by the Museum of Victoria to encourage original research, scholarship and artistic endeavours that constructively and harmoniously link science and the humanities in a unified whole. Such a union of the two disciplines, reflecting greater breadth than is found in its parts, is sought as the cultural contribution of the Scholarship.

The Scholarship also encourages the exchange of ideas between the Scholar, those working in the Scholar's field and the general public. This publication and the Exhibition that it accompanies are a part of this process. The Exhibition will tour Australia during 1985 and 1986.

Biographical Note

Dr. F.G. Hochberg is Curator and Head of the Invertebrate Zoology Department at the Santa Barbara Museum of Natural History, California, U.S.A. He is also an internationally recognized practitioner of the ancient art of nature printing and has played a major role in its revival in North America and in its introduction to Australia.

Dr. Hochberg is a co-founder and patron of the Nature Printing Society of the U.S.A. and a member of the Gyotaku-no-kai, a Japanese Society devoted to fish printing.

Dr. Hochberg's work involves printing directly from a diversity of natural subjects, principally plants, fishes and shellfishes. He has exhibited widely throughout the United States and Canada, conducted many workshops, lectures and demonstrations on nature printing and published widely on this subject.

Dr. Hochberg is the 1985 Science and Humanities Scholar at the Museum of Victoria, Melbourne, Australia. As part of his project he is preparing a folio of twenty prints of Australia plants and fishes for the Museum of Victoria.

MUSEUM OF VICTORIA
06880

MUSEUM VICTORIA
Location: Main Lib PAM
Date: 22/4/12
Bar code:
Call no.:

copy 4

Science and Humanities Scholarship

The Science and Humanities Scholarship of the Museum of Victoria was established in 1977 to promote activities that academically or aesthetically link science and the humanities. The underlying aim is to encourage and develop an Australian scholarship in this field, although this Scholarship, in its application, is not confined either to Australian topics or Australian scholars.

The Scholarship is awarded annually and during a twelve month period provides:

- an allowance to cover living expenses
- an allowance to cover travel from the scholar's home to Melbourne and also within Australia when necessary
- work space and secretarial assistance at the Museum of Victoria
- an allowance to cover miscellaneous expenses incurred during the course of the project.

The Museum's extensive research collections, archives and library are at the Scholar's disposal. These are among the finest in the field of natural history in Australia. Additionally, objects and material relating to the history of human society and science and technology are available.

The Scholarship is administered by the Science and Humanities Committee of the Museum of Victoria. Applications may be submitted at any time during the year although normally only one Scholar will be supported at a time. Applications must include:

- a curriculum vitae
- an outline of the proposed project including a brief statement of how the project will link science and the humanities
- evidence of the applicant's ability to undertake the proposed project

Enquiries should be addressed to:

Science and Humanities Scholarship
c/oThe Director
Museum of Victoria
328 Swanston Street
Melbourne, Victoria 3000, Australia

Introduction

During the past 10 years there has been a tremendous proliferation of activity in nature printing. Through workshops, exhibitions and publications age-old techniques have been revived and nature printing is regaining acceptance as a sophisticated and viable medium of expression that stands on its own in the art world. The exhibition *Pressed on Paper* brings together, for the first time, the best work of contemporary nature printers from the United Stated, Canada, Australia and Japan. Prints by 34 artists were selected to present a comprehensive overview of the diversity of styles, techniques and subjects that can be employed in this unusual art form which blends so well the aesthetic elements of art and nature.

The exhibition *Pressed on Paper* was originally organised and jointly sponsored by the Santa Barbara Museum of Natural History, the Nature Printing Society and the Smithsonian Institution's National Museum of Natural History. The exhibition toured the United States and Canada from April 1981 until February 1985 under the auspices of SITES, the Smithsonian Institution's Travelling Exhibition Services.

Funding and support for the Australian tour of the exhibition were provided by the Science and Humanities Committee, Museum of Victoria Council, following my appointment as the Science and Humanities Scholar for 1985. The aims of this scholarship are to encourage and promote research and aesthetic activities that constructively link Science and the Humanities.

There is a timeless joy in using one's hands to touch and explore the delicate contours of nature while at the same time creating images on paper or cloth. As you view the images in the exhibition, stop for a moment and reflect on these impressions of nature. In an era of ever-increasing speed and complexity, the artists have reached back in time to revive ancient techniques. Working with fine handcrafted brushes and rollers, exquisite handmade papers and bright inks, they have captured the essence of nature which on all sides surrounds our lives but from which we are becoming increasingly isolated.

History of Nature Printing

Impressions of nature have been created for centuries in all parts of the world. Nature prints date from the dawn of human attempts to capture images of the natural world. Some of the oldest examples of Australian rock art are dominated by handprints and positive imprints of grasses which reflect elements in the diet of early Aborigines. Prints and silhouettes of hands are commonly associated with paleolithic cave and rock paintings around the world. They constitute a permanent visual record of the artist's existence. Even today, signature prints are among the strongest statements of an individual's identity. Police maintain extensive files of finger prints, birth certificates often are registered with a baby's foot prints, and palmists print and study human hands. All are expressions of our desire to record our existence and individuality.

Stone rubbing, referred to in China as *T'a-pen,* developed hand-in-hand with the invention of paper and heralded the art of printing. The techniques originated as a means of copying and disseminating inscriptions carved in stone. For centuries it was a popular practice to incise calligraphic texts and pictorial scenes in stone for the sole purpose of being reproduced by rubbing. Inscriptions, often in tombs, commonly commemorated contemporary life and times as well as Chinese myths and legends. The earliest stone rubbings appeared in the Ch'in Dynasty (221 – 106BC). Today, rubbings are routinely produced for sale throughout the Orient, especially in China, Kampuchea

Stone rubbing of Chinese calligraphic characters.

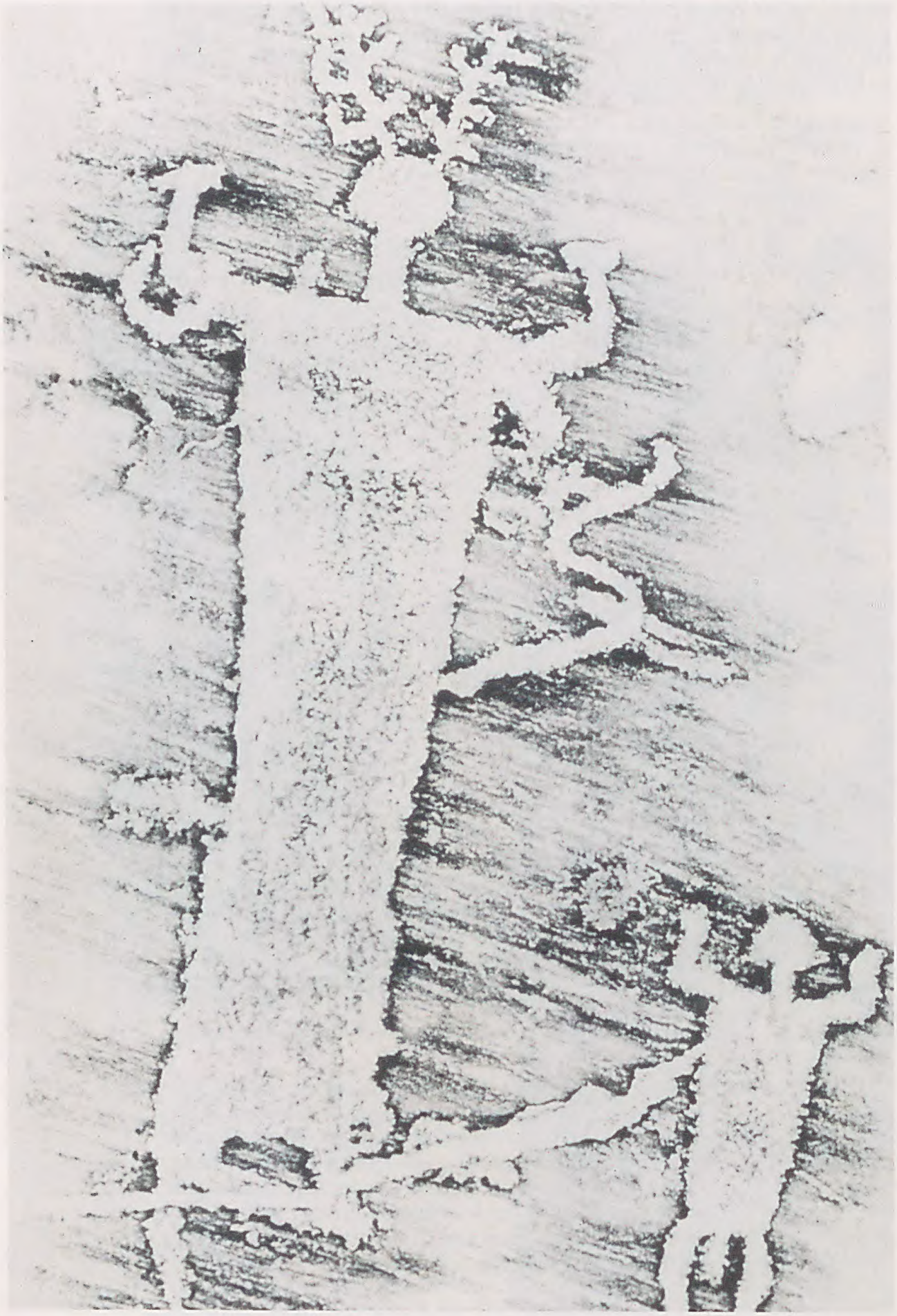
(Cambodia) and Thailand. In Japan, simple stone rubbing techniques are widely utilised in the popular art form known as *Bokutaku* or *Takuhon.*

Termed the indirect or "wet rubbing" method, the technique involves moulding a moist sheet of long-fibre paper over the surface of an engraved stone and pounding it into the depressions by means of a stiff brush. As the paper dries black ink is rubbed or dabbed evenly onto the paper by means of tampos, balls of cotton wrapped in silk. When dry, the paper is carefully peeled off the stone and pressed flat revealing an indelible image of the stone's surface relief.

Relief rubbing of Thailand stone carving. Classical dancers entertaining Royal guests.

The value of this technique is obvious. Permanent records, which are easily transported and stored, can be produced of relief surfaces of any sort. Although often replaced today by photography, rubbings still give the most accurate and detailed reproductions of carved relief surfaces, sometimes providing details that are not visible even to the naked eye. Calligraphers study the carved seals and scripts of ancient and modern masters in this fashion. Anthropologists use stone rubbings to preserve and study not only primitive petroglyphs but the elaborate and often elegant relief carvings on temples and monuments. Many Museums employ rubbings to display rare and delicate objects in their collections.

The indirect method shows up outside the Orient in the "dry rubbings" of monumental brasses and gravestones. Dry rubbing techniques are much less complicated and time-consuming than the Oriental wet rubbing techniques. A sheet of dry paper is taped in place over the surface of the object to be recorded and then simply rubbed with charcoal, graphite, crayons or rubbing waxes to express details of the

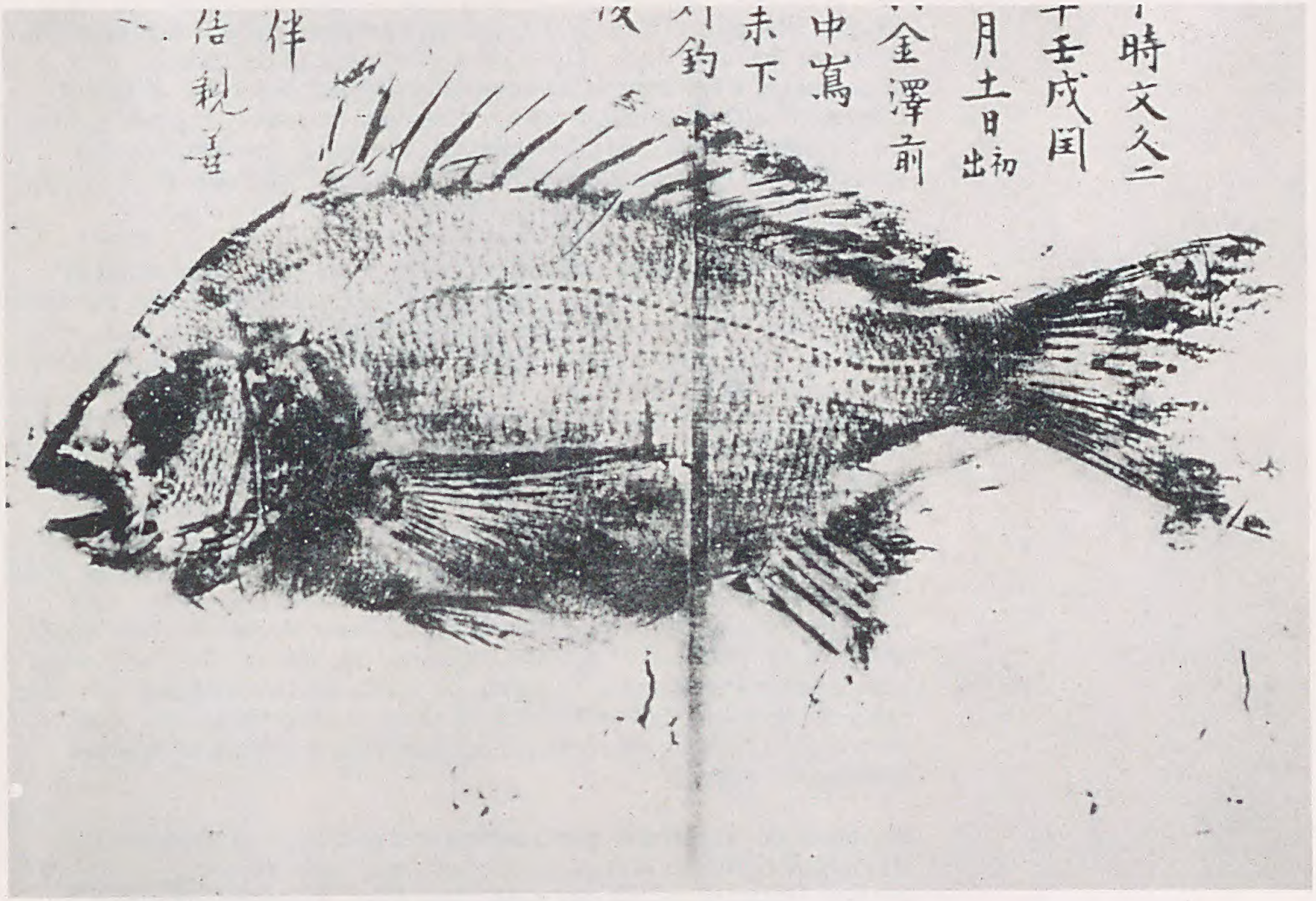


Rubbing of paleolithic European petroglyph by German anthropologist, Deitrich Evers.

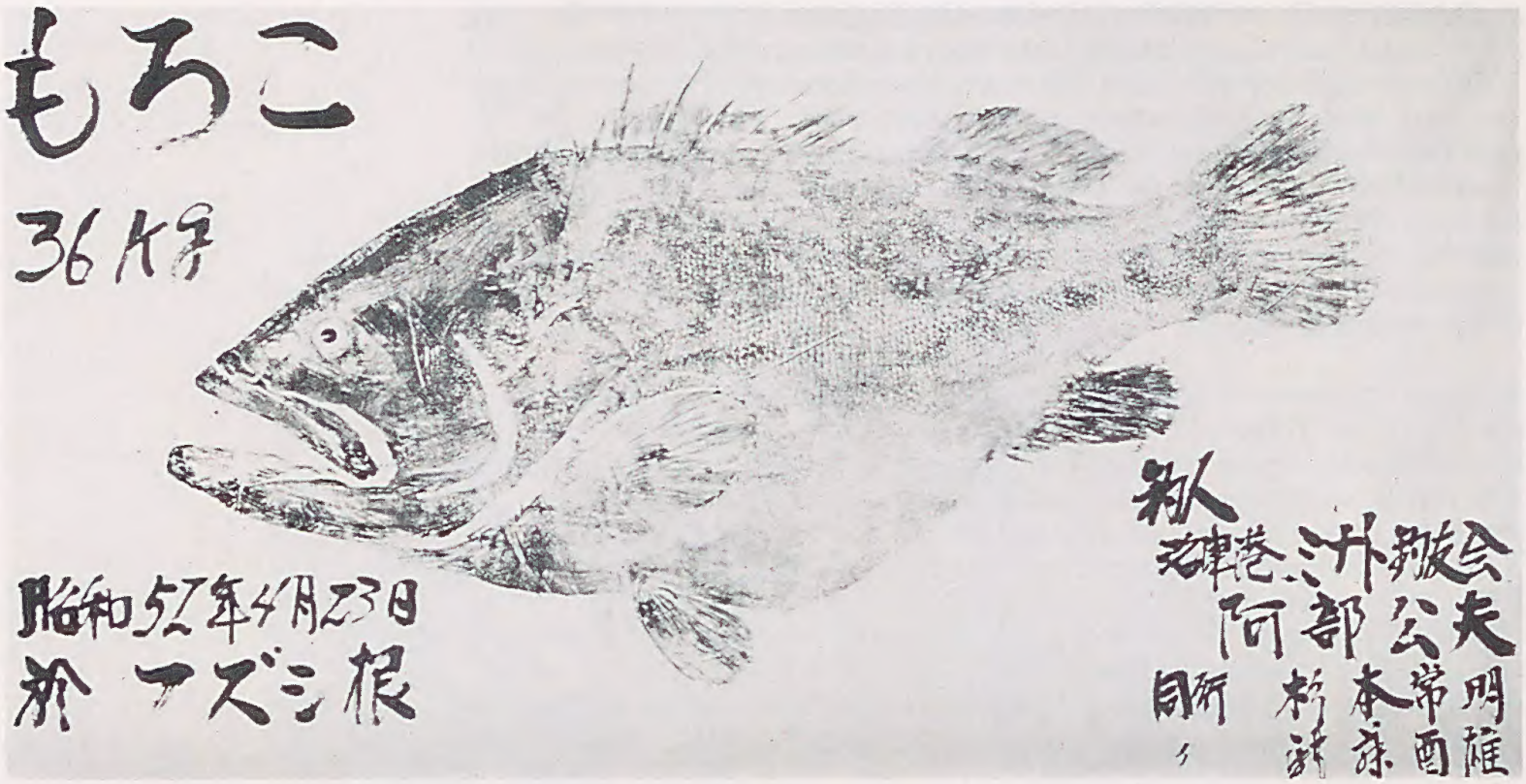
surface relief. Brass rubbing flourished in England in the 1600's to 1700's and then all but disappeared until its recent revival in the mid 1900's. During the past 20 to 30 years gravestone rubbing has become an increasingly popular hobby in the United States and England. In part this is due to renewed interest in genealogy. Anyone interested in tracing their family tree can easily produce tangible records of their ancestry through rubbings. Historians have taken advantage of dry rubbing techniques to study symbolism on gravestones and costume designers often use brass rubbings as references when studying clothing of the medieval period.

A direct extension of ancient Chinese stone rubbing techniques led to the Japanese art form known as *Gyotaku* or "fish rubbing". It is not known exactly where or when the Japanese first made prints of fishes. The oldest known prints are housed in the Homma Museum of Northern Japan. Commissioned in 1855 by Lord Sakai of the Yamagata Prefecture, they preserve the memory of a record fish catch. Even today Japanese fishermen proudly display prints of trophy catches. Fishing tackle shops fly fish print banners or pin trophy prints to the ceiling to advertise their wares. Scientists who study fishes often use fish prints to study scale patterns or to determine surface-to-volume ratios.

The basic wet rubbing techniques have been greatly refined by the Japanese and elevated to a highly sophisticated art form. The use of colour combined with the delicate details which can be achieved with the indirect method result in exquisite prints of almost photographic quality. The success of fish printing in Japan depends in large part on the materials available, especially the soft but durable handmade



Oldest known Japanese fish print commissioned in 1855 by Lord Sakai.



Fish print banner found in fishing tackle shop in Shimoda, Japan.

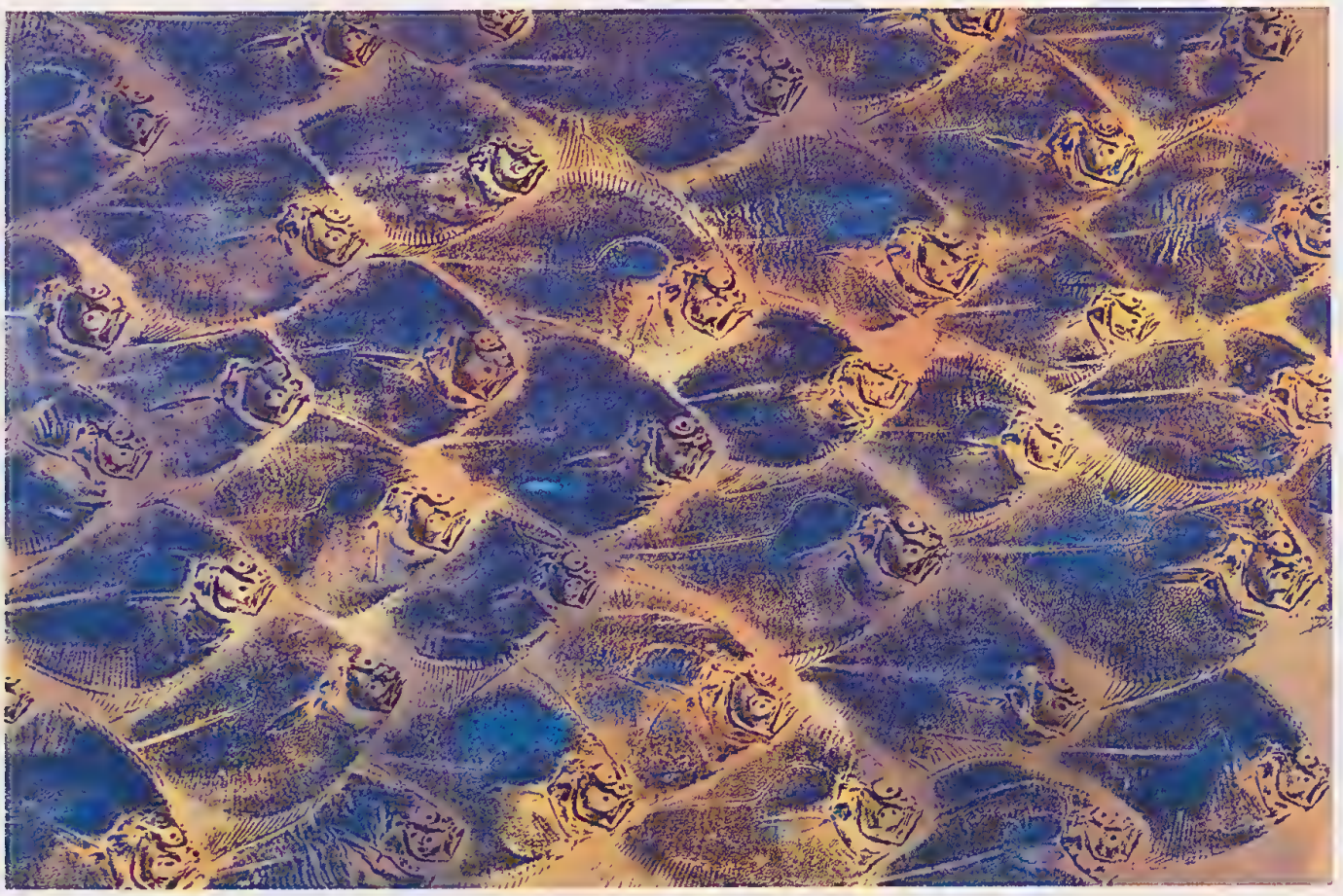
papers and the fine sumi inks. But it also resides in the temperament of the Japanese artists. The aesthetics and patient attention to detail are reminiscent of early Japanese wood block artists such as Hiroshige and Hokusai.

Several fish prints from the 1950's were selected for this exhibition to illustrate the early style. These prints, simple and delicate in appearance, were most often done in traditional black ink. When compared with the billiant coloured works by contemporary Japanese fish printers included in the exhibition, the rapid development and refinement of the techniques which have taken place over the last 30 years are readily apparent.

In Europe and the West an entirely distinct style of nature printing developed in which objects, especially plants, were printed by the direct method. In this method pigments are applied directly to the surface of an object by rollers or brushes. Once the surface is completely coated a piece of soft absorbent paper is carefully lowered onto the inked specimen. By gently pressing or rubbing the paper by hand against the surface of the specimen, the ink is transferred to the paper and a mirror image is produced.

The earliest known plant prints, done in 1425, are found in the travel journal of a German physician, Conrad von Butzbach. No less an artist than Leonardo da Vinci included a sage leaf illustration along with notes on the plant printing process in his *Codex Atlanticus* published about 1510. Leonardo's method consisted of rubbing a leaf with white lead to fill in the recesses between the veins and then coating the raised relief of the veins with lampblack. A sheet of absorbent paper was placed over the coloured leaf and rubbed with a smoothing bone to transfer the image.

Renaissance physicians, pharmacists and herbalists printed realistic and detailed images of medicinal plants and herbs that were useful in healing. Botanists of the day used plant prints to document regional floras. From these early beginnings the plant printing process was



Orange and Blue Flounders (28½ x 35½″)
Robert Cale

Octopus (14 x 21½″) Robert Cale

progressively refined over several hundred years. Coloured pigments were introduced and the flat press was eventually employed to make the impressions. The fidelity of detail in many of the herbals produced during the eighteenth and nineteenth centuries are unsurpassed even today. However, these methods had limitations because a single leaf could be used to produce only a few prints. Eventually the electrotype technique was developed in which the leaf or plant to be printed was pressed into a soft lead plate. The lead plate was then immersed in an electrolytic bath and a thin layer of copper deposited over the surface of the plate. The copper electroplate was hard enough to be used to print a large series of images.

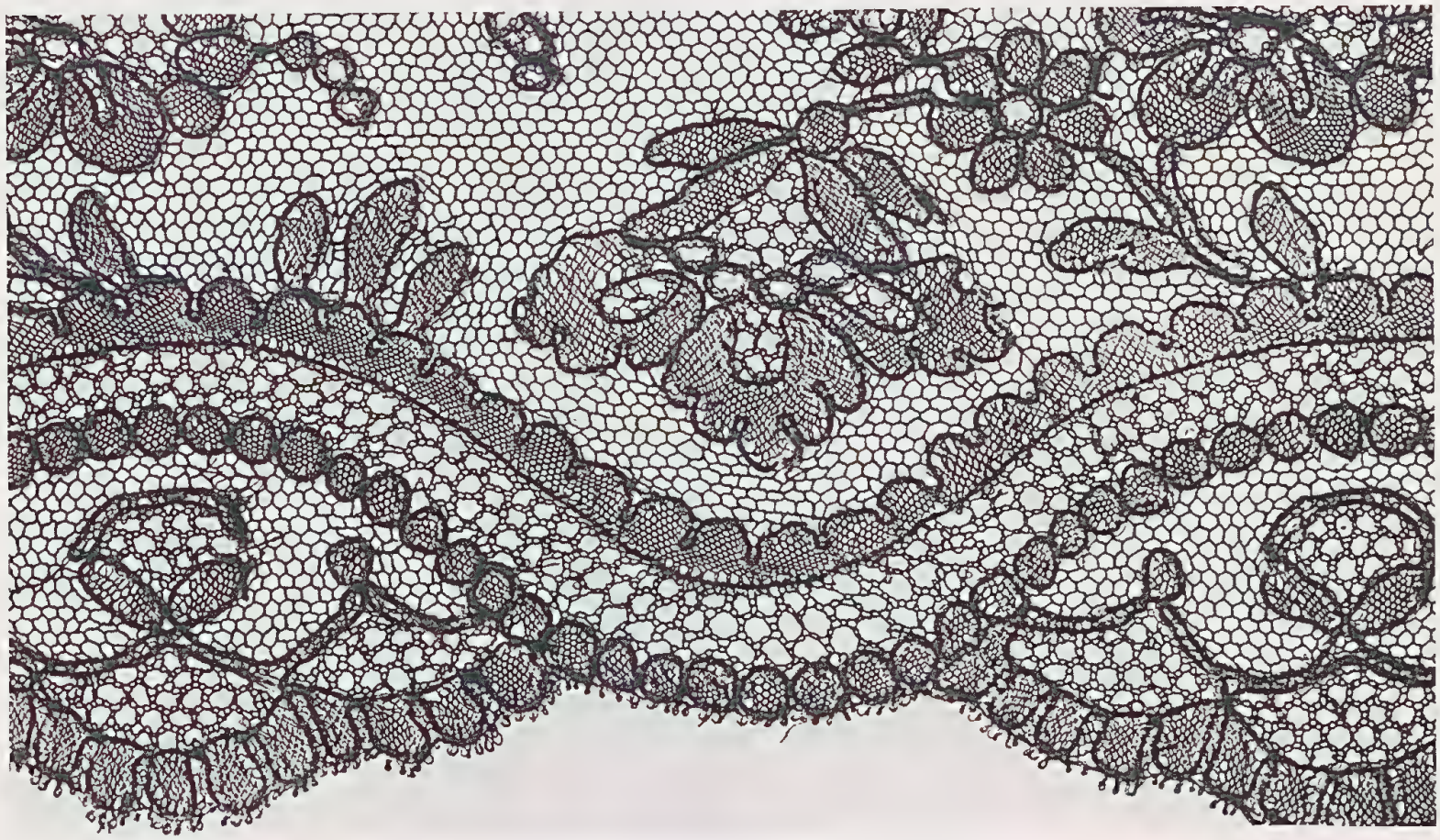
Two of Europe's leading 19th century printmakers, Alois Auer of Vienna and Henry Bradbury of London, vied for the patient of this new nature printing process. Bitter arguments erupted between them in the 1850's, however, despite the controversy, both men continued to refine techniques and they extracted maximum results from the plant printing process. Several impressive books were published during this period

Earliest known plant print done in 1425 by German physician, Conrad von Butzbach.

containing stunning images of seaweeds, ferns, leaves, flowers, lace, snake skins, bats and even sections of agates which had been polished and etched. In the long run it proved too costly and time-consuming to illustrate books with nature prints and eventually the techniques were replaced by other printmaking processes and by photography. The golden age of nature printing was past and has not been revived in Europe.

Recently, several portfolios of plant prints have been discoverd in Australia. James Sinclair and his wife Ellen made a series of fern and gum leaf prints in the 1860's. Sinclair, an early settler in Melbourne, worked for many years designing and landscaping Fitzroy Gardens.

Three electrotype prints from a 1853 nature printing album produced by Alois Auer, Director of the Imperial State Press in Vienna.



A. Lace.

B. Flower

C. Agate

Geranium (10 x 15¼″) Robert W. Little

Blue Ling Cod Babies (14¾ x 18½″) Eva B. Zbar

Goldfish (12¼ x 16½″) Syuho Rokuhara

Gunard Perch on Mat (12½ x 16¼″) Yusui Yamano

Henry Deane, a noted amateur paleo-botanist, produced an extensive collection of leaf prints around the turn of the century. Deane used the prints as references for his important research on leaf form and venation in living and fossil plants of Australia.

Though nature printing was introduced into America in the colonial era, it was slow to catch on there. Plant prints by Francis Pastorius, the founder of Germantown, were used in a book as early as 1683. Jane Colden, a colonial botanist from New York, and Joseph Breintnal, a cloth merchant from Philadelphia, illustrated regional floras with nature prints done in the direct method. Benjamin Franklin developed a technique to print plant leaves on paper money to prevent counterfeiting. Paper currency with nature prints was produced in the American colonies for about 50 years starting in 1739.

Newspapers of the day often carried advertisements offering to produce black or coloured prints for anyone sending in a plant. However, by the early 1800's nature printing had died out and would not reappear until the 1930's – more than 100 years later.

In the last few years there has been a remarkable resurgence of interest in nature printing in the United States. The first exhibition of nature prints by American artists was assembled at the Santa Barbara Museum of Natural History in 1975. A year later the Nature Printing Society was formed to provide a base for exchange of information and ideas on nature printing. The Society currently lists about 100 members and is modelled on the *Gyotaku-no-kai,* a Tokyo-based association of fish printers.

The renewed popularity of nature printing is principally due to the simplicity of the direct printing techniques combined with the accessibility of subjects. With a little practice the techniques can be mastered and in short order it is possible to produce striking prints of plants, fishes, feathers, shells, rocks and other found objects. Few art forms so simply or precisely capture the subtle details and graceful beauties of nature. Certainly no other method allows the design and texture of nature to be felt through the hands as the image is expressed and impressed on paper or cloth.

Fern print, dated 1867, by Australian Ellen Sinclair, housed in National Herbarium Library, Melbourne.

Techniques and Materials

Nature printing is defined as a means of using inks or pigments to transfer images of natural objects to the surface of paper, cloth and other substances. Plants, animals and other found objects are traditionally used as templates to create relief prints from nature.

Two methods are commonly employed: the *direct* and the *indirect.* In the direct method, the subject is painted with ink and then a sheet of paper is pressed onto the inked surface. The result is a mirror image print. The indirect method involves placing a sheet of damp paper over a subject and moulding it around and into all of its contours. As the paper dries, ink is applied to the surface of the paper. Though this technique is considerably more complicated and time-consuming than the direct method, it produces much more detailed and exact impressions, especially with fishes. Since the direct method is easier and since it can be applied to both plants and fishes, it will be described below.

A few basic materials are necessary, most of them obtainable in any good art store. In the Orient, sumi or stick inks are traditionally used. A thick solution is obtained by grinding a stick of pressed carbon particles on a suzuri stone and mixing the powder with water placed in a depression in the stone. In this country it is much simpler to buy tins or tubes of oil or water soluble block printing inks. They come in a variety of colours and are relatively inexpensive and easy to use. Ink can be stored in baby food jars (or any suitable container) and may be diluted to several different consistencies with either water or linseed oil, depending on the type of ink used.

Frequently, concentrated ink is used straight from the container. Fishes are most easily printed with water soluble inks while plants and most other objects such as feathers, shells, crabs, etc. are best printed with oil-based inks.

For plant printing you will need a palette knife, a 2 to 4 inch soft rubber roller and a sheet of glass or perspex on which to roll out the ink. For fish printing you will additionally need some straight pins, plastic modelling clay and several brushes ranging in size from a #10 (flat bristle brush) down to a #0 or #00 (fine detail brush). The large stiff brush is used for applying ink to the fish and the small one for painting in the eye. You should also have plenty of newspapers and old rags on hand.

For most printing, a pliable and absorbent Japanese rice paper is preferred. However, since many Japanese handmade papers are costly you will want to start with an inexpensive machine-made paper. Newsprint, available in most art stores, can be used for the first few attempts to judge the effects of your inking. However, this is not a permanent paper and will yellow with age, so when the desired effect is obtained switch to a better paper. The least expensive Japanese papers available are sumi-e or Ho-sho which can be purchased in pads or rolls of several sizes in art stores.

When you have mastered the techniques with these inexpensive papers, try some of the finer handmade papers. You will have a wide variety to choose from since there are hundreds of different kinds of Japanese

papers. They come in varying sizes, weights, textures, colours, absorbencies and costs. For direct printing some of the more popular and easily obtainable rice papers are Hosho, Kozo (Mulberry), Goyu and Kitakata. For indirect printing either Gasen or Gampi papers are preferred. Note that Japanese papers have a smooth and a rough surface with different absorbencies. There is no correct side. Experiment to see which kind of paper, and then which side, works best with each subject you print. For some subjects, fine European etching papers such as Arches, Fabriano or Rives also work well.

Plant Printing

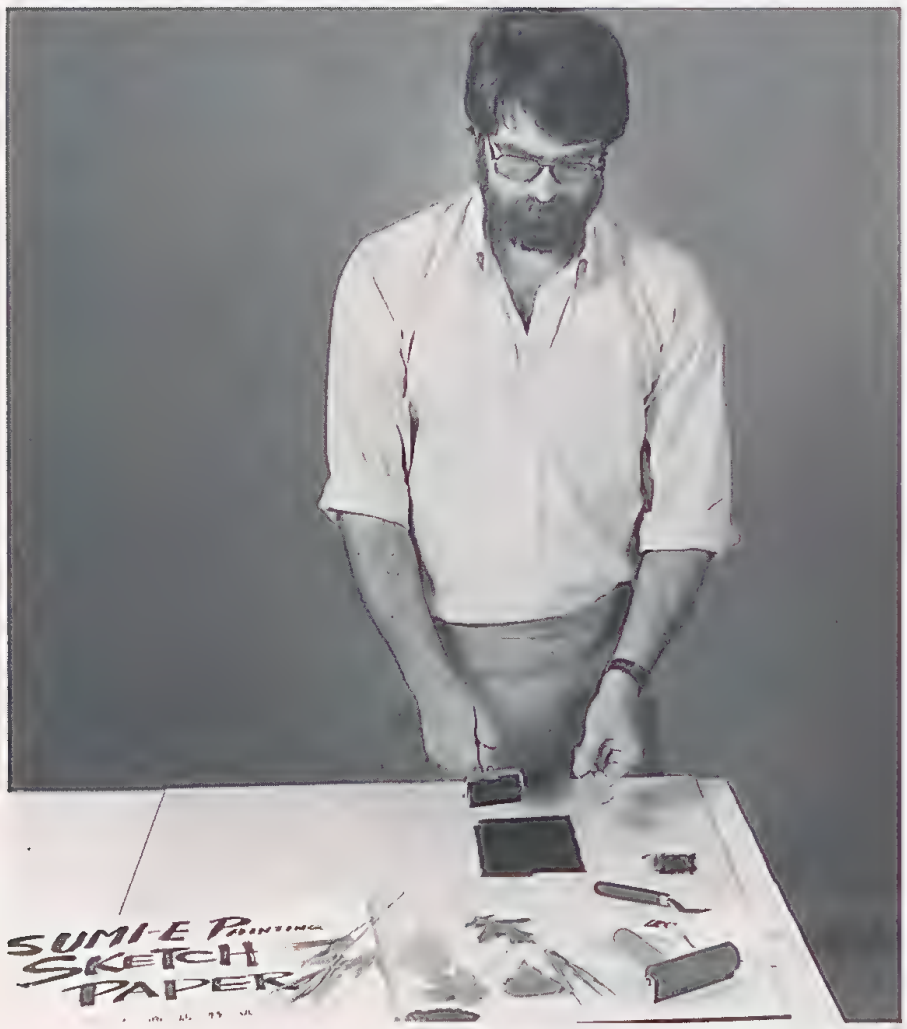
Because they are flat, leaves make excellent subjects for the beginning printer. Collect a few fresh leaves and place them in a plastic bag until ready for printing. Select ones that are soft and pliable and 3 to 4 inches in length or diameter. Leaves that are slightly fuzzy and have pronounced veins on the undersurface will produce the most dramatic results. Weeds found growing along roadsides or in your garden have some of the most interestingly shaped leaves. Take a walk in the country and collect vines with wispy tendrils, or grasses and rushes with slender blades and stems, or try leaves from native trees or wildflowers. Take only a few leaves from each plant so that you do not destroy the entire plant.

Once back inside, spread newspapers out on a work table to protect the surface. Give yourself plenty of room. Lay out your printing supplies. Squeeze out a blob of ink in one corner of the glass or perspex and mix it well with a palette knife. Take a generous smear of ink and roll out a thin, even film with your roller. Next, select a leaf, place it on the palette and apply the ink evenly to the underside of the leaf with the roller. If rollers are not available use a large (1 inch) flat brush to apply the ink. To avoid getting ink on your fingers, use tweezers when inking or moving a leaf. After the leaf is inked, place it with inked side up on a piece of clean newspaper. Take a piece of printing paper and position it over the leaf. While anchoring both the paper and the leaf with one hand, press and rub gently with the other. Try to feel the structure of the leaf as you work slowly out from the centre. As your fingertips outline the leaf's edge and trace over each vein ink in transfered from the leaf to the paper. Take care not to move the paper or leaf while rubbing or a blurred "double image" will result. When finished, lift the paper, turn face up and allow to dry overnight.

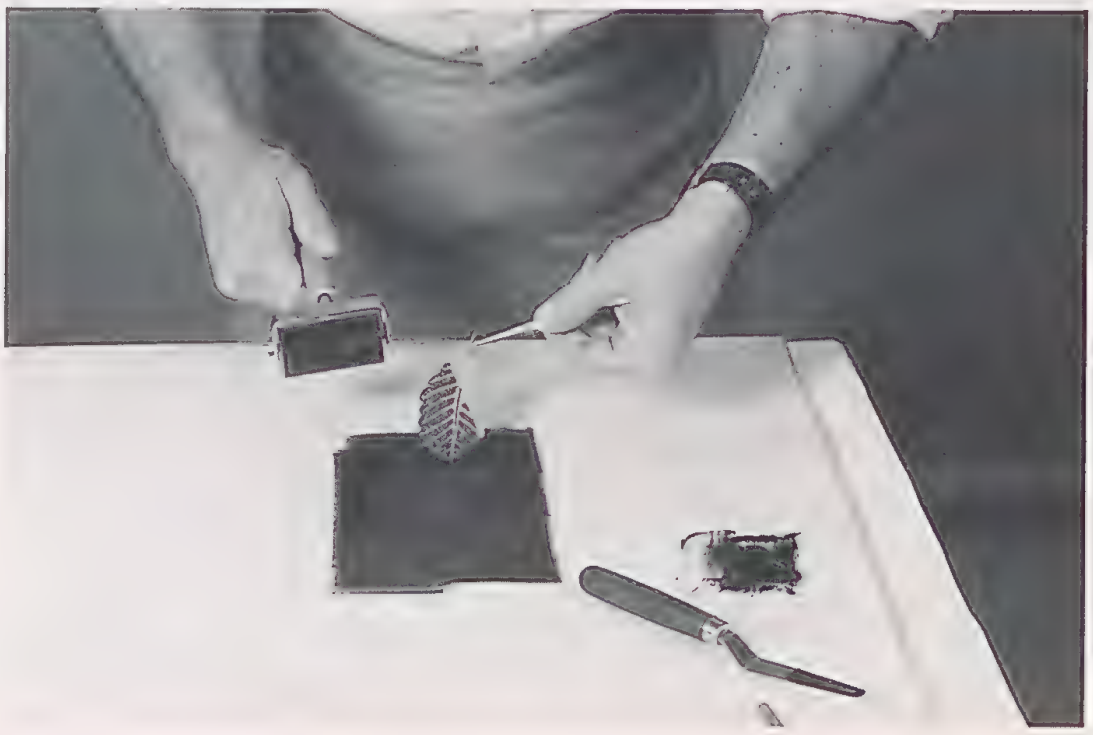
As you become more skilled in inking and rubbing, try printing both sides of a leaf. Often the results are entirely different. To do this you must ink both sides of the leaf and then place it between a folded piece of printing paper. In some cases it may be necesaary to flatten a leaf or plant for a few hours in a plant press or under a stack of books. When printing dense, leafy plants it helps to thin out the leaves with a pair of scissors before printing. Most leaves can be inked and printed several times. However, the leaves of some plants (especially those growing in shade) and most flowers are very fragile and can be used only once. Try printing roots, branches and seed pods. Add them to your compositions to enhance the botanical information about the plant you are working with. Expand your horizons and try ferns, mosses, lichens, or algae. All will produce beautiful prints so don't be afraid to experiment, and don't be discouraged with failures – just keep practising.

Look up the name for each different kind of plant which you collect and print. Put together a nature printed herbal of trees, weeds, herbs, food plants, or native wildflowers. There is perhaps no more accurate way of reproducing the size, shape and venation of a leaf than through nature printing. Successively print the same leaf in various positions on a single piece of paper or try creating arrangements of different plants such as those found in a specific ecological setting. Create compositions involving the whole plant from the roots to the flowers. Move on to different ink colours and finer handmade papers.

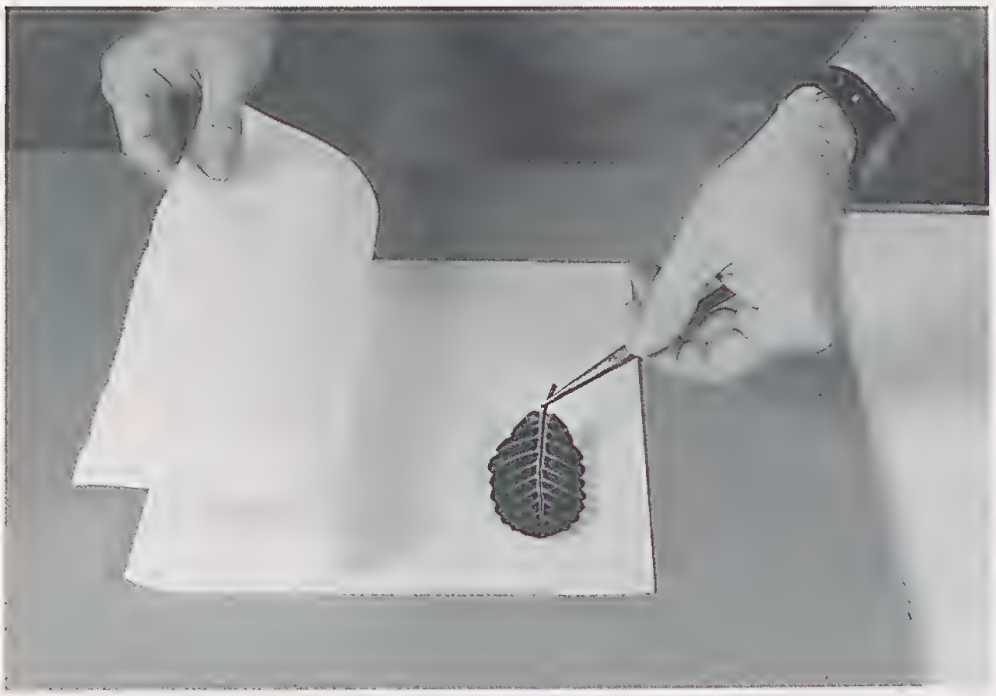
Clean up is easily accomplished. Scrape the excess ink off the glass plate with your palette knife and then clean up the remaining ink with a rag soaked in kerosene or mineral turpentine. The roller or brush should be soaked briefly in a container filled with kerosene and then removed, carefully cleaned and thoroughly dried with rags or paper towels. For water-based inks simply use soap and water in place of cleaning solvents.



1. Assemble printing materials and a supply of fresh leaves or plants. Roll out a palette of ink on a plate of glass or perspex.



2. Apply a thin layer of ink to one or both sides of a fresh leaf.



3. Place the inked leaf between the folds of a soft absorbent piece of paper.

4. Rub the paper gently by hand to transfer the ink to the paper.

5. Carefully open the paper to reveal the image of the leaf. Remove the leaf before adding further images to the paper.

Fish Printing

The techniques for fish printing were recently developed in the Orient. Fishes have the added dimensions of depth and hence the process of printing them is considerably more complicated than printing plants. To start, I would suggest using a flat fish of some sort (ie. flounder, perch or dory). First, obtain a fresh or frozen fish, preferably one with prominent scales. Be sure the fins and body are not damaged.

Check to make sure the fish is fresh. The gills should be red and the eyes clear, not opaque. Start with small to medium fishes (6 to 10 inches) until you have perfected the techniques. Identify each fish you print and record such vital information as where, how and when the fish was caught. Next, wash the fish several times with a powdered cleanser and water to remove any debris or mucus. The cleaner the fish, the sharper the details in the final print. Try not to damage the fins or to remove too many scales in the process. Rinse the fish well and then dry with paper towels. Carefully blot up all the water, blood and mucus from around the nostrils, under the gill openings (opercula) and in the mouth. The drier the fish is, the clearer the print details will be. Plug up the mouth, anus and gill openings with small wads of towelling to prevent any moisture from being squeezed out, thus ruining the print. Spread out plenty of newspaper in your printing area and then arrange the fish in a position ready for printing.

With gurnard perch, morwong, parrot fish and other deeper-bodied fishes the fins need to be supported. Form plasticine modelling clay into strips and place them beneath the dorsal, pelvic and anal fins. Spread the fins out in a natural position and then pin them to the clay to hold in place. Since the tail rests flat on the table, it does not need to be supported with clay. The clay also helps prevent the fish from moving while it is being printed.

Apply a thin coat of ink with your large brush. Depending on the stroke direction, you will get different results. When inking from head to tail the ink will be deposited over the surface of the scales, whereas when applying ink from tail to head it will collect along the edges of the scales. The latter method gives very good definition. Ink the fins and tail just before you're ready to print since the ink will dry there the fastest. Avoid brushing on too much ink since it may puddle or run, thus spoiling the final print. Excess ink should be soaked up with a sponge or paper towelling. Traditionally, the eyes are not inked since they have no definition. The eyes should be painted in later by hand. In many cases it is easier to remove the eyeball prior to inking in order to get a crisp, circular orbit. Experiment with the thickness of the ink. For a 3-dimensional effect apply thick, dark ink around the outline of your fish, on the head and fins and thin, lighter ink in the centre or middle of the body and in the belly region. For fishes which are counter-shaded, the top half (above the lateral line) should be dark and the bottom half light. If you tire of the effects of black ink on white paper, try mixing colours to match the normal colouration of the fish. Often it helps to let the ink dry slightly before applying the paper.

Next, position a piece of paper over the fish. Allow several inches or more all the way around for margins. Carefully lay the paper down over the entire fish and hold firmly. Starting with the head end, hold the paper down with the palm of one hand while using the fingers of your

other hand to trace over the mouth, jaw and eye region. Press gently as you slowly smooth out the paper in the head region so the ink is taken up evenly. Working carefully, begin to move your hands towards the tail alternately pressing out the paper against the scales in the upper and lower halves of the body as you go. When you come to the fins, rub the paper out over the spines and fin rays and into the soft webbing between. Finally, run your fingers out over the paper covering the tail. Remember that all this has to be done rather quickly, before the ink dries. Try not to wrinkle the paper too much while rubbing and be careful not to move the paper since this will produce a "double print". Now take a deep breath and remove the paper from the fish to look at your finished print.

When the ink is dry you can paint in the eye with a small brush. Use solid black for the pupil but leave a tiny blank area as a light facet. Between the pupil and the edge of the socket, apply a light wash to match the natural colour of the fish's iris or to highlight a colour used in the body of the print. As a final touch, many artists stamp the print with their chop or seal in red ink. Design your own chop and cut it in a soft, plastic eraser or simply use your signature along with such vital data as name of the fish, weight, date and place of capture, or date and place of printing. For storage or presention the paper must be flattened. If thin Japanese papers are used they must be wet mounted on a piece of backing paper.

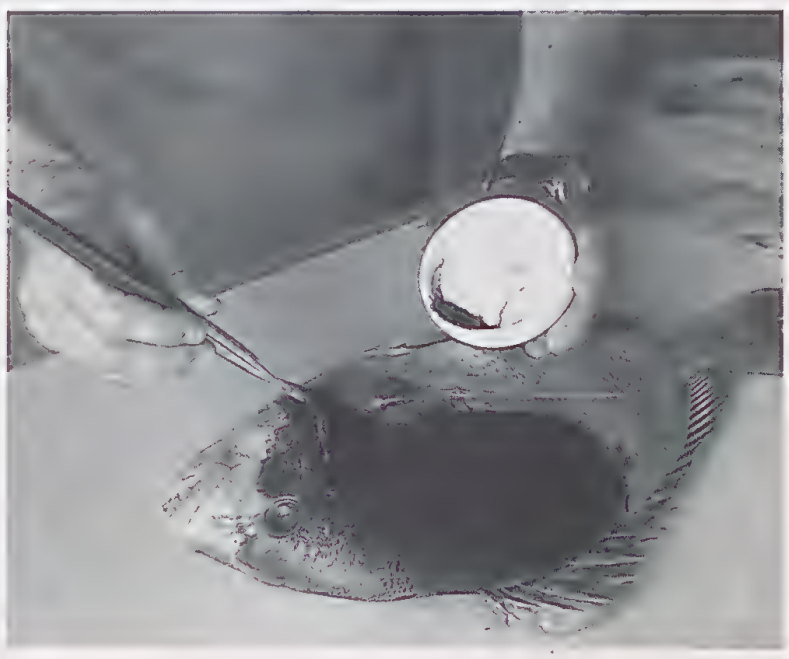
Do not be discouraged if the first few prints are not masterpieces. Besides, that is the reason you should practise with inexpensive newsprint or sumi-e paper before moving on to fine Japanese or European printing papers. Even after you become a more experienced printer you will want to run several "proof prints" of each fish so you can see what problems you may have to overcome. Remember that the first few prints from each fish also serve to remove excess moisture. Hence, it often takes three or four inkings before you begin to produce attractive prints. You must re-ink the fish each time before pulling the next print unless you want to try for what is known as a "ghost image" in the background. A good specimen will usually yield eight to ten prints or more before it starts to dry out or the surface becomes gummed up with ink. If you now want to eat the fish, simply wash it off, fillet, skin and cook to your taste.

As you develop proficiency, explore new ideas. Print a school of fish or a large predatory fish chasing its smaller prey. Change the configuration of the fish or vary the position of the subject on the paper to suggest movement. Some Oriental purists work only with live fish. These are briefly removed from the water, inked, printed, washed and returned to their home. A frantic flip of the tail or a squirming twist of the body imparts a subtle smear to each "fish signature". Search for new subjects octopus and squids are excellent and if you are really adventurous, use the pigment from a cephalopod's ink sac for delightful sepia prints. Experiment with different types and colours of inks and also different weights and colours of papers. And when you have mastered the direct method, go on to the more difficult indirect method practised by the Japanese.

Many objects are refractive to water soluble inks thus oil-based block printing, etching or lithographic inks must be used instead. The technique is almost identical except that an oil or solvent may be required to dilute the inks. Sea shells, crabs and sea stars make excellent subjects. You will soon find that the rounder the object or the more uneven and spiny the surface, the more difficult they are to print – but keep trying.

Perhaps the best justification for nature printing is that a refreshing day outdoors can be extended long into the evening as your hands work lovingly over every vein and contour of some treasured object, creating as they flow a beautiful work of art. What better way to become familiar with the world of nature which continually surrounds and supports us.

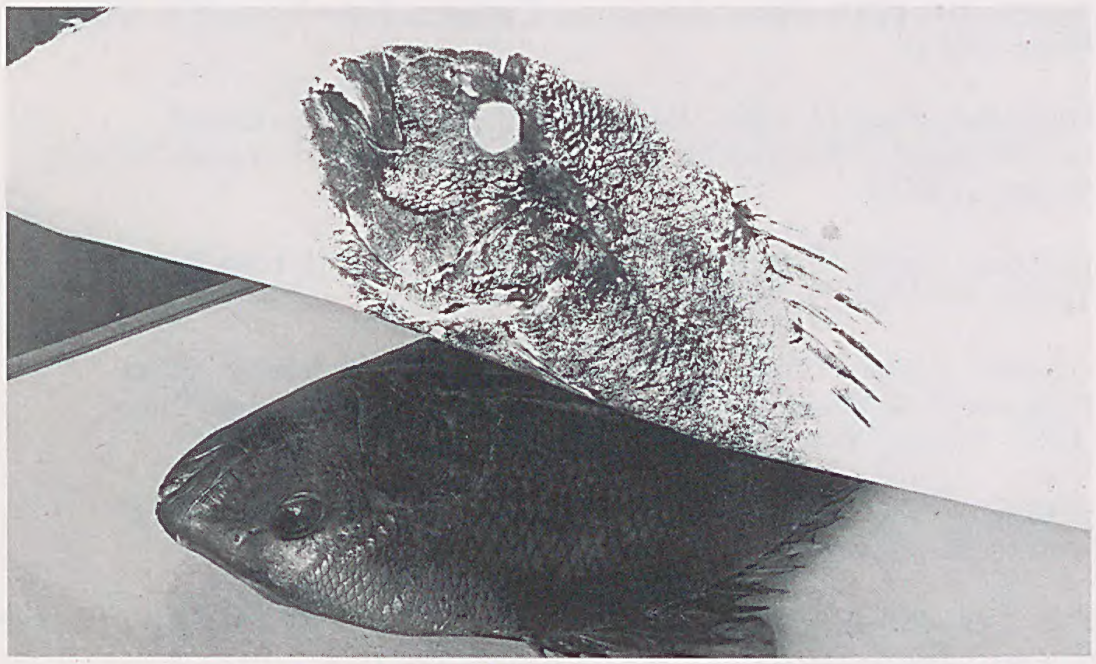
1. Select a fresh, undamaged fish. Wash to remove mucus and blot dry. Plug the mouth, gills and anus with wads of paper toweling to absorb blood and other fluids.



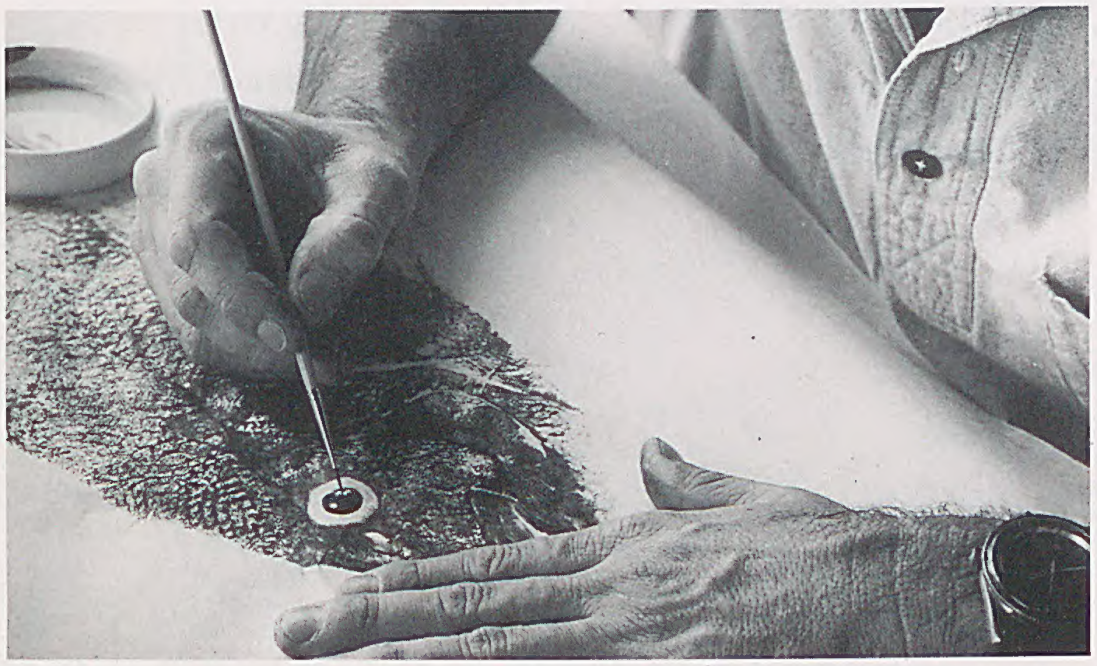
2. Apply ink directly to the surface of the fish with a brush.

3. Lower a piece of soft, absorbent paper over the inked fish.

4. Rub the paper gently by hand to transfer the ink to the paper.



5. Carefully remove the paper to reveal a mirror image of the fish.



6. After the ink dries, paint in the eye by hand using a small brush.

References

Anderson, Frank J. 1971. Nature-Printing, a Lost Art Remembered. *Garden Journal,* 21(2): 40-46. [April].

Cave, Roderick and Geoffrey Wakeman. 1967. Typographia Naturalis: A History of Nature Printing. Wymondham, ENGLAND: Brewhouse Press. 37 p.

Dewees, Christopher M. 1984. The Printer's Catch: An Artist's Guide to Pacific Coast Edible Marine Life. Los Osos, CA: Sea Challengers. 112 p.

Firestein, Cecily B. 1977. Rubbing Craft. New York, NY: Quick Fox. 95 p.

Geary, Ida. 1978. Plants Prints and Collages. New York, NY: Viking Press. 101 p .

Heilmann, Peter N. 1982. Die Natur als Drucker. Dortmund, GERMANY: Hitzegrad Press. 144 p. [Translated by Nature Printing Society, 1983.]

Hiyama, Yoshio (Editor). 1972. Gyotaku. An Art of Fish Print. Tokyo, JAPAN: Kodansha. 166 p.

Hiyama, Yoshio. 1964. Gyotaku. The Art and Technique of the Japanese Fish Print. Tokyo, JAPAN: University of Tokyo Press. [1982. Seattle, WA: University of Washington Press.] 65 p.

Hochberg, F.G. 1984. Impressions of Nature. *Terra.* 23: 21-29. [September/October]

Kusuhara, Masaya. 1973. Gyotaku – The Art of Fish Printing. *Reader's Digest,* 102(617): 28-33. [September]

Little, Robert W. 1983 (2nd printing). Nature Printing. Pittsburgh, PA: Pickwick-Morcroft. 115 p.

McGreer, William. 1972 . Reproducing Relief Surfaces. A Complete Handbook of Rubbing, Dabbing, Casting, and Daubing. Concord, MA: Minuteman Press.

ARCHIVES
761
H658n

MUSEUM OF VICTORIA